

ABSTRACT OF THE DISCLOSURE

A transmission unit and a failure recovery method with failure recover functions, which use limited network resources efficiently. A label table manager manages a label table which associates incoming labels related to incoming transmission data with outgoing labels related to outgoing transmission data. Based on the label table, a transmission controller performs label-switching of transmission data. A path set-up unit establishes a loop-shaped protection path that includes a part or whole of transmission links of an existing working path and would allow transmission data to flow in the opposite direction to that of the working path. When a failure occurs, a failure recovery controller changes the association between the incoming and outgoing labels stored in the label table and switches the failed part of the working path to the loop-shaped protection path, thereby restoring the label-switched network.